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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,125	08/28/2001	Gurtej Singh Sandhu	303.676US5	7117
21186	7590	04/13/2004	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.			SPERTY, ARDEN B	
P.O. BOX 2938			ART UNIT	
MINNEAPOLIS, MN 55402			PAPER NUMBER	

1771

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,125

Applicant(s)

SANDHU ET AL.

Examiner

Arden B. Sperty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 51-56, 60-73, 75-78 and 81-85 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 51-56, 60-73, 75-78 and 81-85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/20/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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FINAL OFFICE ACTION

1. Claims 51-56, 60-73, 75-78, 81-85 are pending.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on Jan 20, 2004 was filed after the mailing date of the First Office Action on Oct 16, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner. The references are not seen to anticipate the claimed invention because they fail to teach or fairly suggest a titanium alloy layer as claimed by Applicant.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 51-56, 60-73, 75-78 and 81-85 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The added material which is not supported by the original specification is as follows: the titanium alloy/first layer having a similar chemical profile in walls and a base portion of the titanium alloy layer. It is unclear what is encompassed by the "chemical profile" and how one of ordinary skill in the art would determine such a profile.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 51-56, 60-73, 75-78 and 81-85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. It is unclear what structure is intended by the added limitation. Applicant is required to point out places in the specification where the amendment finds basis. For examination purposes it is the examiner's position that a conformal layer of titanium alloy having a composition that is uniform in the walls and base of a contact hole is intended.

Allowable Subject Matter

7. The previous indication of claims 73, 75-78 and 81-85 as allowable has been withdrawn based on the double patenting rejection stated below.

Response to Amendment

8. The amendment filed Jan 20, 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the titanium alloy/first layer having a similar chemical profile in walls and a base portion of the titanium alloy layer.

Applicant is required to cancel the new matter in the reply to this Office Action.

The amendments to the claims overcome the 35 USC 102 and 103 rejections over USPN 4,994,410 to Sun and USPN 5,970,309 to Ha because the references do not teach or fairly suggest a conformal layer of titanium alloy having a composition that is uniform in the walls and base of a contact hole as claimed by applicant.

Response to Arguments

9. Applicant's arguments, see paper filed Jan 20, 2004, have been fully considered and are persuasive. The 35 USC 102(b) and 103(a) rejections over USPN 4,994,410 and USPN 5,970,309 have been withdrawn.

10. Applicant's offer to consider submission of a terminal disclaimer to overcome the double patenting rejections has been reviewed but it is not an adequate response to the double patenting

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rejection. The double patenting rejections are restated herein, and a further double patenting rejection in view of USPN 6,433,434 is included.

Double Patenting

11. Claims 60, 61, 63-67, 69-73, 76-78, 81 and 84-85 of this application conflict with claims 48-50 and 60-80 of Application No. 09/940980. Although the claims are not identical due to the claims of the instant application further containing limitations drawn to a fill of W or Al, it would have been obvious to one of ordinary skill in the art to put a fill of W or Al in the via because such a structure is notoriously well-known in the integrated circuit art (as evidenced by USPN 5924012 column 7, lines 63-65 and Fig. 1; USPN 6153490 column 10, lines 49-51 and Fig. 9i; USPN 5846881 col 2, lines 33-40 and Fig. 1; USPN 5444018 column 5, lines 59+; USPN 5644166 column 8, lines 30-34 and Fig. 8).

12. Claims 60, 61, 63-67, 69-73, 76-78, 81 and 84-85 of this application conflict with claims 44-45 and 60-83 of Application No. 09/940917. Although the claims are not identical due to the claims of the instant application further containing limitations drawn to a fill of W or Al, it would have been obvious to one of ordinary skill in the art to put a fill of W or Al in the via because such a structure is notoriously well-known in the integrated circuit art (as evidenced by USPN 5924012 column 7, lines 63-65 and Fig. 1; USPN 6153490 column 10, lines 49-51 and Fig. 9i; USPN 5846881 col 2, lines 33-40 and Fig. 1; USPN 5444018 column 5, lines 59+; USPN 5644166 column 8, lines 30-34 and Fig. 8).

Although the claims are not identical due to the inclusion of specific integrated circuit structural limitations (semiconductor substrate, electronic device, insulating layer, active region) in the claims of Application No. 09/940917, the claims are not patentably distinct because they are drawn to the same subject matter and are merely using alternate language for describing a via or contact.

13. Claims 60, 61, 63-67, 69-73, 76-78, 81 and 84-85 of this application conflict with claims 46-47 and 57-82 of Application No. 09/941123. Although the claims of Application No. 09/941123 (except claim 58) are not identical due to the claims of the instant application further containing limitations drawn to a fill of W or Al, it would have been obvious to one of ordinary skill in the art to put a fill of W or Al in the via because such a structure is notoriously well-known in the integrated circuit art (as

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evidenced by USPN 5924012 column 7, lines 63-65 and Fig. 1; USPN 6153490 column 10, lines 49-51 and Fig. 9i; USPN 5846881 col 2, lines 33-40 and Fig. 1; USPN 5444018 column 5, lines 59+; USPN 5644166 column 8, lines 30-34 and Fig. 8). Although the claims are not identical due to the inclusion of specific memory device structural components (memory array, control circuit, I/O circuit) in the claims of Application No. 09/940917, the claims are not patentably distinct because they are drawn to the same subject matter and are merely using alternate language for describing a via or contact.

14. Claims 51-56, 60-73, 75-78, 81-85 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 6,433,434. Although the claims are not identical due to the inclusion of specific memory device structural components (memory array, control circuit, I/O circuit) in the claims of U.S. Patent No. 6,433,434, the claims are not patentably distinct because they are drawn to the same subject matter and are merely using alternate language for describing a via or contact.

With respect to the Double Patenting rejections made herein, the following citations show that a memory, an integrated circuit, a contact and a via are obvious variants of each other and in the instant case are not patentably distinct: USPN 5924012 (column 1, lines 24-29, 41; column 3, lines 37-41; column 7, lines 43-48), and USPN 5846881 (column 1, lines 4-8), USPN 5444018 (col 1, lines 32-35).

15. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

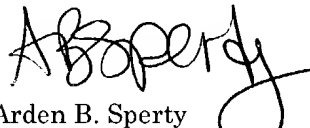
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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arden B. Sperty whose telephone number is (571)272-1543. The examiner can normally be reached on M-Th, 08:00-16:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arden B. Sperty
Examiner
Art Unit 1771

02 April 04



DEBORAH JONES
SUPERVISORY PATENT EXAMINER